

REMARKS

Claims 1-8 are pending in the Office Action with claims 1 and 5 being the independent claims. Claims 1-8 are amended.

Specification

The Examiner required that an error in the Specification be corrected. Applicant has amended the Specification as required by the Examiner to correct the error.

35 U.S.C. § 112

The Examiner rejected claims 1-8 under 35 U.S.C. § 112 as being indefinite because the Examiner alleges that the term "detecting the torque" is not supported by the specification. The Examiner states that the system does not detect the torque, but instead, calculates or derives the torque. Applicant has amend claims 1 and 5 to recite "determining the torque," thereby overcoming this rejection. Claims 2-4 and 6-8 are also amended to be consistent with the independent claims. Applicant respectfully requests that the Examiner withdraw the rejection.

35 U.S.C. § 103

The Examiner rejected claims 1-8 as being unpatentable over U.S. Patent No. 4,812,725 to Chitayat. Claim 1 relates to a position control method for feed drive equipment in which a plurality of feed drive mechanisms disposed in parallel for feeding a movable body are individually driven by servo motors. The position control method includes the steps of determining torque of the servo motors, and correcting position

commands of at least one servo motor in dependence on the determined torque so that the servo motors have matching torque.

Chitayat discloses linear motors 20 and 22 with separate and independent control systems in FIG. 3. A command signal generator 76 produces a position, velocity and/or acceleration command for the motor controllers 80 and 82. The motor controller 80 produces drive signals useable by the linear motor 20. A position and velocity feedback generator 58 provides feedback signals to the motor controller 80, thereby permitting it to adjust its drive signals to coincide with the commanded value. The motor controller 82 similarly operates. See Chitayat, column 5, lines 33-50.

In FIG. 4, Chitayat discloses a system having a single motor controller 80 that produces all of the drive signals required for driving both linear motors 20 and 22. The single drive signal is produced in response to a command from the command signal generator 76 and is applied to a load splitter 88. A control, represented by a dashed line 94, controls the position of the movable element of the load splitter 88 and is responsive to the position of an assembly 28 (FIG. 1), movable along the Y axis. In this manner, the ratio of the drive signals applied to the linear motors 20 and 22 is varied in relation to the Y position of the assembly 28. See Chitayat, column 5, line 58-column 6, line 9.

Chitayat does not teach or suggest all the features recited in the pending claims. For example, Chitayat does not teach or suggest "determining torque of the servo motors," as recited in independent claims 1 and 5. Instead, Chitayat discloses that a position and velocity feedback generator 58 provides feedback signals to a motor

controller 80. See Chitayat, column 5, lines 41-46. Nowhere does Chitayat teach or suggest a system that determines torque of the servo motors.

Further, Chitayat does not teach or suggest correcting position commands of at least one servo motor in dependence on the determined torque so that the servo motors have matching torque, as recited in claims 1 and 5. In FIG. 3 of Chitayat, each motor includes a separate and independent control system. See Chitayat, column 5, lines 33-35. The separate and independent control systems do not correct commands so that the servo motors have matching torque because they provide no way of matching the torques.

The system disclosed in FIG. 4 of Chitayat also does not disclose correcting position commands of at least one servo motor in dependence on the determined torque so that the servo motors have matching torque, as recited in claims 1 and 5. Instead, the system disclosed in FIG. 4 of Chitayat controls the motors using a load splitter whose splitting position is based upon the position of a separate assembly moving along the Y-axis. Accordingly, Chitayat does not teach or suggest a system having the features of the claimed invention. Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

Claims 2-4 and 6-8 depend from and add additional features to independent claims 1 and 5. Accordingly, these claims are patentable for at least the reasons set forth above. Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of these claims.

Conclusion

Applicant respectfully requests the that the Examiner reconsider and withdraw the rejections of the claims. Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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